

REMARKS

In the Action, claims 1-11 are rejected. In response, claims 7-11 are cancelled. This leaves claims 1-6, with claim 1 being the sole independent claim. In view of these amendments and the following comments, reconsideration and allowance are requested.

Rejection Under 35 U.S.C. § 103

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. § 103(a) as being obvious over the alleged admitted prior art in view of U.S. Patent Publication No. 2003/0016269 to Sekiya and U.S. Patent Publication No. 2002/0130939 to Jacob. The rejection is based on the position that it would have been obvious to modify the alleged admitted prior art to include the features of Sekiya and Jacob. Claims 7-11 are cancelled to obviate the rejection of these claims.

The alleged admitted prior art is cited for disclosing an inkjet printer having a printing head and a transfer unit for directing paper toward the printing head. The Action suggests that the alleged admitted prior art discloses the claimed inkjet printer except for the supporting rollers located above the discharge heater roller and the use of a star wheel. Jacob is cited for disclosing a star wheel for minimizing the spread of ink of an image on a paper. Sekiya is cited for disclosing a heater roller having a rubber covering to generate a friction force.

The claims are not obvious over the combination of the cited art since the combination of the cited art does not disclose a discharge heater roller in contact with the side of the paper opposite the image that is formed on the paper, a supporting roller located above the discharge heater roller for discharging the paper together with the discharge heater roller and where the discharge heater roller includes a rubber covering for generating a friction force during the discharging of the paper.

The present specification discloses the alleged admitted prior art device as having a heated roller that is specifically disclosed as being separate from the discharge rollers. Furthermore, the discharge rollers of the alleged admitted prior art device are positioned

downstream of the heated roller. The discharge rollers of the alleged prior art device are specifically disclosed as being arranged downstream of the heated roller to ensure that the discharge rollers do not contact the printed ink until the ink is thoroughly dried. Furthermore, the heated roller of the alleged prior art device cannot function as a discharge roller as presently claimed.

The prior devices described in the specification include upper and lower discharge rollers that are spaced downstream of the heated roller and downstream of the print head a sufficient distance so that the discharge rollers contact the printed surface of the paper only after the paper has been heated and completely dried by the heating roller. As noted in the Action, the devices of the alleged prior art disclosed in the specification do not disclose or suggest supporting rollers located above the heating roller, a star wheel positioned above the heating roller, or a rubber covering on the cylindrical portion of the heated roller.

Jacob is cited for disclosing a star wheel for discharging paper from a printer. However, the discharge roller 32 of Jacob is a conventional drive device intended for the discontinuous advancement of paper through the printer. The discharge roller 32 of Jacob is not a heating roller as in the present invention. Thus, Jacob provides no motivation or incentive to use a star wheel in combination with a heating roller to simultaneously heat and discharge paper from a printer.

The pressure heating roller 42 and 44 of Jacob is specifically disclosed as being positioned downstream of the printing device and downstream of the star wheel and discharge roller. Moreover, Jacob specifically discloses that the pressure heating roller device is downstream of the print zone by a distance greater than the length of the sheet of printed media passing through the printer. Thus, Jacob specifically distinguishes between the pressure heater roller device and the discharge device and expressly positions the heater roller device downstream of the printer device.

Furthermore, the heating roller 42 of Jacob cooperates with a pressure roller 44 to transfer the paper to a collection tray. In the embodiment shown in Figure 2, the heat and pressure roller system 42 and 44 of Jacob apply a clear plastic film material onto the printed image. Thus, the pressure heating roller system of Jacob laminates a clear plastic layer onto the printed image and does not specifically dry the ink. Thus, the pressure heating system of Jacob laminates a clear plastic layer onto the printed image. This has no relation to the claimed invention.

As disclosed in paragraph 15 of Jacob, the pressure heating rollers are positioned “well beyond” the print zone and are positioned downstream of the print zone a distance greater than the dimension of the printed medium. This specific spacing in Jacob is disclosed as providing an opportunity for the ink to begin the drying process prior to contacting the pressure-heating roller. As disclosed in paragraph 24, the drive device of Jacob is specifically disclosed as a device “that does not grip the sheet media 20 in order to advance it along the media path”. Therefore, the conveying device of Jacob does not discharge the printed paper and does not heat and dry the printed paper as in the claimed invention.

Sekiya does not disclose or suggest a rubber covering on a heated roller for generated friction forced to discharge the paper from a printing device. The coating on the roller of Sekiya is formed from a non-wetting material such as polytetrafluoroethylene. As disclosed in paragraph 118 of Sekiya, the heating roller is made from a material that does not become wet from the ink and does not transfer the ink from the recording medium to the roller. The polytetrafluoroethylene covering on the roller of Sekiya is known to have a very low coefficient of friction, and thus, cannot generate a friction force to discharge paper from the printer. The polytetrafluoroethylene coating of Sekiya is not a rubber coating for generating a friction force to discharge paper as in the present invention.

Furthermore, Sekiya specifically discloses the roller 88 being positioned above the paper so that the roller directly contacts the printed paper. The heated roller is formed from the polytetrafluoroethylene to prevent the ink from adhering to the roller. The device of Sekiya conveys the paper by a continuous belt 40. The paper of Sekiya is not conveyed by the heated roller. Therefore, Sekiya provides no motivation or incentive to one of ordinary skill in the art to replace the continuous belt with a heated roller so that the heated roller is placed below the sheet of paper opposite the print head. Furthermore, even if one were to do so, it would not be obvious to include the polytetrafluoroethylene coating on the roller since the roller would no longer contact the ink. Thus, the polytetrafluoroethylene coating would be unnecessary, would reduce the ability to convey the paper and result in unnecessary added cost to the device.

As previously noted, Jacob discloses a heated pressure roller system downstream of the star wheel and downstream of the printing device. Jacob is similar to the alleged admitted prior art device where the heated roller is positioned downstream of the printing head. Jacob specifically teaches the spacing of the heated roller downstream of the print head a specified distance, and thus, clearly provides no motivation or incentive to one of ordinary skill in the art to position the heated roller immediately downstream of the print head and to contact the heated roller to the side of the paper opposite the printed image with a supporting roller located above the heated roller. Furthermore, Jacob provides no motivation or incentive to modify the alleged prior art device to provide a heated roller and a supporting roller or star wheel to simultaneously heat the printed image and discharge the paper from the printer. Sekiya does not provide the deficiencies of the alleged prior device or Jacob and Sekiya does not suggested a heated roller contacting the side of the paper opposite the printed image.

In view of the above, the art of record either standing alone or in combination do not disclose or suggest a discharge heating roller in contact with the side of the paper opposite the print head with a supporting roller located above the heated roller for discharging the paper

together with the discharge heated roller and where the heated roller includes a rubber covering for generating a friction force for discharging the paper as presently claimed. Accordingly, independent claim 1 is not obvious over the combination of the alleged admitted prior art, Jacob and Sekiya.

The claims depending from claim 1 are also allowable as reciting additional features of the invention that are not disclosed or suggested in the art of record. For example, the combination of the cited art does not disclose the heated roller being close to the print head as in claim 2, the supporting roller being a star wheel positioned above the discharge heated roller as in claim 3, the rubber roller being a heat resistant material as in claim 5 or the heating coil being a nichrome wire as in claim 6 in combination with the features of claim 1. In particular, Jacob provides no motivation to use a star wheel above a heated printer roller as claimed. Jacob specifically discloses the star wheel being completely separate from the pressure heating device of Jacob and being spaced a distance greater than the dimension of the printed paper. Accordingly, claims 2, 3, 5 and 6 are not obvious over the art of record.

Claim 4 is rejected as being obvious over the alleged admitted prior art in view of U.S. Patent No. 6,004,052 to Muranaka. The alleged admitted prior art is cited for disclosing an inkjet printer having the claimed features except for an aluminum roller. Muranaka is cited for disclosing an aluminum roller.

For the reasons advanced above, the alleged admitted prior art device does not disclose or suggest the features of independent claim 1. Furthermore, Muranaka does not provide the deficiencies of the alleged admitted prior art. The prior device described in the specification does not suggest a supporting roller to cooperate with a heating roller where the supporting roller contacts the paper to discharge the paper where the supporting roller cooperates with the heating roller. Muranaka relates to a printing apparatus having a pair of feed rollers upstream of the printing head as shown in Figure 1. The rollers of Muranaka are feed rollers and are not

discharge rollers as in the claimed invention. The feed rollers of Muranaka can be heated to remove moisture from the paper prior to printing so that the static charge created on the sheet of paper by the roller is uniformly distributed. Thus, Muranaka specifically disclosing heating for producing uniform electrostatic charge and for removing moisture from the paper prior to the printing step. In each of the embodiments of Muranaka, the feed rollers slide over or rub the surface of the paper to produce the electrostatic charge having a predetermined value to assist in the printing step.

Muranaka provides no suggestion of heating the paper downstream of the printing head and fails to disclose the combination of a supporting roller above a discharge heating roller where the discharge heating roller contacts the side of the paper opposite the printed image. Accordingly, the combination of the prior device described in the specification and Muranaka do not render claim 4 obvious either alone or in combination with the features of claim 1.

In view of the above comments, the claims are submitted to be allowable over the art of record. Accordingly, reconsideration and allowance are requested.

Respectfully submitted,



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